




ORIGINAL RESEARCH

Effect of the Prevent Alcohol and Risk-Related Trauma in Youth (P.A.R.T.Y.) Program among senior school students

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Abstract

Objective: The Prevent Alcohol and Risk-Related Trauma in Youth (P.A.R.T.Y.) Program at The Alfred uses vivid clinical reality to build resilience and prevent injury by following a trauma patient's journey through hospital. The present study aims to analyse the effect of P.A.R.T.Y. on safety perceptions of driving after alcohol, seat belt use and risk-taking activities.

Methods: Pre-programme, immediately post-programme and 3–5 months post-programme surveys with questions focused on the programme aims were distributed to all consented participants.

Results: There were 2502 participants during the study period and 1315 (53%) responses were received. The mean age was 16.2 (SD 0.8) years, 724 (56%) were women and 892 (68%) possessed a learner's permit for driving. Pre-programme, 1130 (86%) participants reported 'definitely not' likely to drive after drinking alcohol, that improved to 1231

(94%) immediately post-programme and 1215 (93%) at 3–5 months post-programme ($P < 0.01$). Designating a safe driver after drinking was reported by 1275 (97%) pre-programme, 1295 (98%) immediately post-programme and 1286 (98.2%) 3–5 months post-programme ($P = 0.02$). The perception of sustaining 'definite' injury after a motor vehicle crash without a seat belt increased from 780 (60%) pre-programme to 1051 (80%) immediately post-programme and 886 (69%) 3–5 months post-programme ($P < 0.01$). The possibility of sustaining 'definite' injury after risk-taking activities was reported by 158 (12%) pre-programme, 467 (36%) post-programme and 306 (23%) 3–5 months post-programme ($P < 0.01$).

Conclusions: The P.A.R.T.Y. Program at The Alfred engaged substantial numbers of youths and achieved significant improvements among key outcome measures. Objectives were sustained at 3–5 months post-programme, but demonstrated decay, highlighting the importance of continual reinforcement.

Key findings

- P.A.R.T.Y. participants demonstrated significant change in their perceptions surrounding risk-taking behaviours.
- Perception change was sustained at 3–5 months, however demonstrated decay.

Key words: adolescents, alcohol intoxication, decision-making, risk-taking, trauma prevention.

Background

Injury is the leading cause of mortality in young Australians, accounting for two-thirds of deaths in those under the age of 24 years and being responsible for more deaths of 12–24-year-old Australians than all other causes combined.¹ This young cohort represents 25% of all Victorian lives lost to road trauma over the past 10 years. In 2015, 22% of road deaths were young people aged 18–25 years, despite only accounting for 13% of licensed drivers. Of these, 67% of the lives lost were killed during times of high alcohol exposure.² A total of 22% of Victorian vehicle occupants who lost their lives in 2015 were unrestrained by seat belts.³ Among survivors, the impact of injury can greatly effect an individual's future health and well-being by altering the path of their employment, their education and recreational opportunities. Injuries such as acquired brain injury and

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spinal cord injury can leave patients with permanent disability and disfigurement.^{4,5}

As young people progress through adolescence and assume more independent roles with greater responsibility for decision-making, they become more exposed to opportunity to engage in risky behaviour, increasing their susceptibility to certain types of injury. Greater independence, coupled with the development of new skills, including driving and entry into the workplace at a time when peer acceptance is of heightened importance, leads to increased incidence of risk-related harm. These changes, as well as increased experimentation with illicit substances and alcohol consumption, culminate in young people being more prone to certain injuries such as falls, transport injuries, unintentional poisoning and assault.⁵⁻⁷

The most effective solution is injury prevention.⁸ EDs have been suggested as a focus for harm surveillance and intervention, but with varying success.⁹⁻¹¹ Schools are recognised by government as appropriate targets for drug and alcohol prevention interventions, as they provide opportunity for the implementation of pre-emptive and cost effective programmes that reach substantial and diverse student groups.⁷ The Prevent Alcohol and Risk-Related Trauma in Youth (P.A.R.T.Y.) Program is an initiative of the National Trauma Research Institute (NTRI), which has been running at The Alfred since 2009. The programme was adapted and licensed from the parent programme developed in Canada 30 years ago, which now runs in many formats at over 100 sites worldwide. The P.A.R.T.Y. Program at The Alfred is currently delivered to different cohorts of young people in a range of formats. These include trainees from the Royal Australian Navy, organisational apprentices and the schools programmes. The two facets for senior school students are the in-hospital programme, which is a 1 day programme that runs within The Alfred in Melbourne, Australia; and the off-site programme called Outreach, which utilises regional performing arts centres as venues, to

replicate hospital settings, in order to extend the reach of the programme to regional areas within Victoria. In both facets of the programme, groups of senior school students have the opportunity to gain a 'back stage pass' to the departments of the hospital that treat physically injured patients. Throughout the programme the participants meet health professionals, patients and families and are engaged in hands-on activities that are designed to change the youth perception that 'trauma won't happen to them'. Additional programme information is available through the website: <http://www.partyalfred.org.au/>.

The aim of the present study was to analyse the effect of P.A.R.T.Y. on participant opinion regarding safety of driving after alcohol consumption, likelihood of utilising a designated safe driver after drinking alcohol, seat belt use and perceptions of likelihood of injury after risk-taking activities. For the present study, only data from in-hospital participants were collected and analysed.

Methods

Participants were senior school students (aged 16–18 years) who attended the P.A.R.T.Y. Program at The Alfred from 2011–2016. Participating schools were selected through a randomised ballot process, with randomisation stratified among regional and metropolitan Victoria and from government and independent schools. To participate in the evaluation component of the P.A.R.T.Y. Program, informed consent was obtained from each school, the participants and their parent/guardians. All were informed of their ability to withdraw from the evaluation component at any time.

Paper-based surveys with objective questions focused on the programme aims were distributed to all participants at three time points; two on programme day and a third 3–5 months following the programme. On programme days, each student received an individual name tag that contained their unique identifier to copy onto their survey. Pre-programme and immediately post-programme surveys were completed by participants.

Surveys were explained in consistent plain language, distributed and directly collected by P.A.R.T.Y. staff. Three to five months post-programme, follow-up surveys were posted to all participants' schools for distribution to students by staff. Students received sealed and named envelopes, each containing a letter of instruction and survey pre-populated with their unique identifier, indexed to their previous responses. Once completed school staff collected and posted surveys back to the P.A.R.T.Y. team at NTRI, using the supplied pre-paid and addressed envelope.

The survey used was based on a tool created and implemented for research at P.A.R.T.Y. headquarters in Canada and adapted for local use through stakeholder consultation.¹² The broad scope of risk-taking behaviours addressed in the programme made the development of a validated measurement too complex and costly for the scope of this study.

The evaluation survey is included in Appendix S1.

Responses were categorised. The primary outcome measures were likelihood of driving after drinking alcohol, designation of a safe driver after drinking alcohol, perception of injury if involved in a motor vehicle crash if not wearing a seat belt and perceived likelihood of injury after risk-taking activities. These outcomes were dichotomised for the three time periods surveyed and analysed using the χ^2 test. A *P*-value of <0.05 was considered to be statistically significant.

Ethics approval to conduct research was obtained from the Alfred Health Research and Ethics Committee (206/09), the Department of Education and Training Victoria (2009_000322) and the Catholic Education Office, Melbourne (GE09/0009).

Results

Study participants from 104 schools or educational organisations attended one of 90 in-hospital P.A.R.T.Y. at the Alfred programmes, with a mean group size of 27.8. Of these, 71 (68.2%) were from metropolitan Melbourne. There were 2502 participants during the study period, of which 1315 (53%; 95% confidence

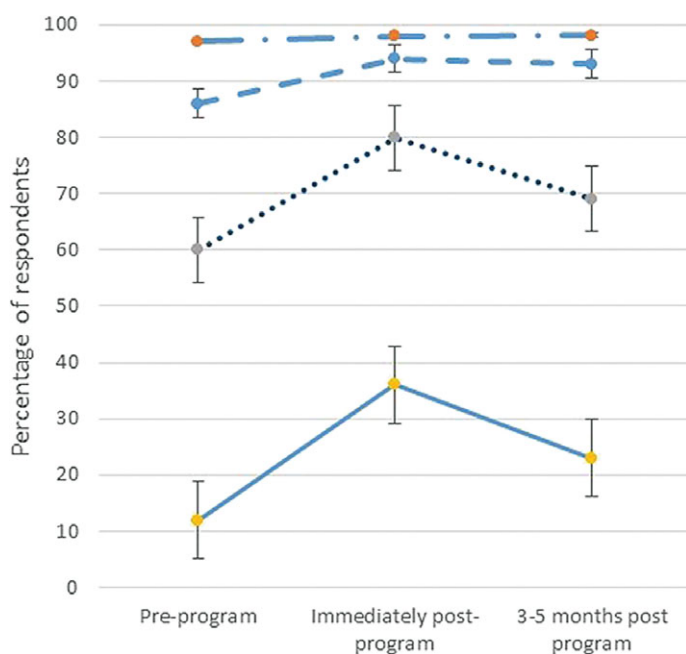


Figure 1. Responses to primary outcome measures. (---●---), Definitely not likely to drive after drinking; (—■—), likelihood to designate a safe driver; (·····●·····), perceived likelihood of injury without seatbelt; (—▲—), perceived likelihood of injury after risk.

interval: 51–54) responses were received for all three time points. The mean age was 16.2 (SD 0.8) years and 724 (55.6%) were women. At the time of the programme, most participants ($n = 892$; 68%) possessed a learner's permit for driving.

Responses to primary outcome measures are shown in Figure 1. Pre-programme, there were 1130 (86%) participants who reported 'definitely not' likely to drive after drinking alcohol, that improved to 1231 (94%) immediately post-programme and 1215 (93%) at 3–5 months post-programme ($P < 0.01$). Report of designating a safe driver after drinking was expressed by 1275 (97%) pre-programme, 1295 (98%) immediately post-programme and 1286 (98.2%) 3–5 months post-programme ($P = 0.02$).

The perception of sustaining 'definite' injury in the setting of a motor vehicle crash without a seat belt increased from 780 (60%) pre-programme to 1051 (80%) immediately post-programme and 886 (69%) 3–5 months post-programme ($P < 0.01$). The likelihood of sustaining injury after risk-taking activity was reported to be 'definite' by 158 (12%) pre-programme, 467 (36%) post-

programme and 306 (23%) 3–5 months post-programme ($P < 0.01$).

Prior to the programme, 413 (31.4%) felt the programme was definitely likely to make a difference in the way they perceived their actions, that changed to 1028 (78.2%) immediately post-programme and 915 (69.6%) at 3–5 months post-programme (<0.01). There was no difference in the reported rate of alcohol intake among participants over the study period ($P = 0.10$).

Discussion

This is the first study to evaluate a school-based model of the P.A.R.T.Y. Program in an Australian setting. Findings showed that the P.A.R.T.Y. Program at The Alfred's participants had significant improvements in their perceived likelihood of not driving after drinking alcohol and their inclination to designate a safe driver when drinking. These variables demonstrated minimal decay. Increased perception of risk was also demonstrated following the programme, with participants showing improvement in their recognition of the possibility of severe injury if undertaking risky activities or not wearing a seat belt.

Substantial decay in these variables at the 3–5 months post-programme period suggests need for continual reinforcement.

Our findings indicate statistically significant changes in the perceptions of P.A.R.T.Y. participants. Additionally, previous research found P.A.R.T.Y. to be successful in reducing the incidence of traumatic injuries and increased modification of risk behaviours in P.A.R.T.Y. participants. These findings indicate that although the programme did not reduce all traumatic injuries in participants, it did show that participants remained injury free for longer, which represents behaviour change. Finally, for those who did sustain injury, the injury severity of P.A.R.T.Y. participants was significantly lower.¹²

In Western Australia, juvenile justice offenders' participation in the P.A.R.T.Y. Program was associated with a significant change in attitudes of participants and reduced subsequent risk of being injured or committing violence and traffic related offences.¹³ A follow-up economic analysis was conducted with this group, assessing the cost effectiveness of P.A.R.T.Y. as an injury awareness education programme. Findings showed P.A.R.T.Y. to be a cost effective hospital-based programme for reducing traumatic injuries among young participants.¹

Outcome measures for this analysis were selected using current themes of harm minimisation among youths. For both young females and young males, the largest unintentional cause of injury and death are transport incidents that account for approximately 20% of injury hospitalisations and 44% of injury deaths in Australia.⁵ This over-representation of youth in road related trauma is linked to risky driving behaviours such as speeding, driver fatigue and driver drug and alcohol intoxication.^{5,14,15} Harms associated with alcohol consumption and other drug use in youth include dangerous levels of alcohol intoxication related to binge drinking, alcohol associated violence, increased incidence of risk-taking behaviours such as hazardous driving, sexual risk taking, and increased unintentional injuries.¹⁶

Young people are highly susceptible to being injured due to their increased involvement in risk-taking activities such as sport and inexperienced driving.¹⁷ Risk-taking and decision-making are shown to be separate but related processes. Biological and environment factors, peer pressure, social and family influences, developmental change and genetic composition are all shown to impact both risk-taking and decision-making processes in young people.^{18,19} There is evidence to show that adolescents display an immature ability to self-regulate and demonstrate decision-making biases towards immediately rewarding experiences over those with long-term benefits.^{20,21}

The present study showed perception of injury without seat belt use and injury after risk was lowest at baseline and demonstrated most rapid decay. Furthermore, designation of a safe-driver after drinking alcohol was consistently indicated among participants and while a statistically significant improvement was demonstrated after the programme, the difference was small. This may be attributed to high level of community education through relevant public health programmes in Victoria. Transport Accident Commission initiatives to reduce drink driving over time, have included both legislative actions and educational campaigns. Actions with legal ramifications include Booze Bus operations resulting in fines, loss or suspension of licence, possible jail time and alcohol interlock laws. Educational initiatives include campaigns that aim to separate drinking and driving all together by planning ahead to leave cars at home, organise designated drivers among friends and book taxis or explore available public transport options.²² The proportion of driver and motorcycle rider lives lost, with a Blood Alcohol Concentration of greater than 0.05 g/mL, has declined from 38% in 1987 to only 17% in 2015.²³

These findings indicate the ongoing need for a multifaceted approach to continual reinforcement of key injury prevention messages.^{24,25} Health promotion and harm minimisation strategies are shown to be most effective when a community-based, multimodal

approach is undertaken. That is, to influence community-based behaviour change, society should look to combine interventions including legal and legislative change (such as compulsory seat belt and bicycle helmet use and mandatory pool fences), improving the built environment (providing safer roads and building regulations), promotion of safe behaviours (such as protective sporting equipment and motorcycle protective gear), public awareness campaigns and positive role modelling (such as celebrity involvement in domestic violence campaigns) and targeted education programmes, such as the Victorian Drug Education in Victorian Schools Program and P.A.R.T.Y.^{7,13,15} Community-based educational interventions should support healthy lifestyle choices, by aiming to change previous understandings, attitudes and beliefs of specific population groups by reducing risk factors, while working with target groups to support intended behaviour change.^{26,27}

Limitations

This study is limited in being a survey that collected data at single points in time. This was mitigated by three surveys being distributed at different time points with high participant compliance. The surveys collected data on perception and risk factors simultaneously, and cannot provide evidence for causality, but rather only an association between the programme and the outcome measures of risk perception. The perceptions of reduced alcohol intake were self-reported, did not request quantitative values around alcohol intake and may be subject to reporting bias and therefore not be a true reflection of any change from this programme. Participant mean age of 16 years deemed that the participants reported on their perceptions of some risk-taking activities that may sit outside the range of their current age bracket, such as being of age to assume the role of designated driver without needing a learner's permit supervisor.

Effect of the P.A.R.T.Y. Program on outcomes that are likely to become clinically significant in older

age may be assessed through longer term follow up of participants, but were outside the scope of this study. Outreach P.A.R.T.Y. Program evaluations and effectiveness, in particular those administered in rural settings, may be different to in-hospital, metropolitan programmes and comparative analysis will be the focus of future research.

The lack of a control group limits conclusions on association of any observed change to the intervention. Risk-taking behaviour and major trauma rates in Australia have been shown to be higher among young adults and in adolescents.^{1,5-7} As such, harm reduction through a change in perception is most likely to benefit the participants of this programme and the changes observed likely to be directly associated with the programme and not other potential confounders.

Population-based demonstration of harm minimisation through reduced frequency of injuries among the target population is a more clinically relevant outcome measure. However, such analyses would require enrolment of the majority of youths in the state into the programme and longer term follow up. This would be beyond the scope of this project and may not be possible. For example, demonstrating a 20% reduction in major trauma among the population aged 16–20 years through an educational intervention would require enrolment of 340 000 participants (sample size calculated for a 20% reduction from current rate of major trauma in Victoria among patients aged 16–20 years, using 95% confidence intervals and 80% power).

Conclusion

In the face of increasing global burden of trauma, effective injury prevention programmes are essential. The P.A.R.T.Y Program at The Alfred engaged a substantial number of young people and achieved significant improvements among key outcome measures. All objectives were sustained at 3–5 months, but demonstrated decay, highlighting the importance of continual reinforcement.

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Competing interests

PC and BM are section editors for *Emergency Medicine Australasia*.

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Supporting information

Additional supporting information may be found in the online version of this article at the publisher's web site:

Appendix S1. Questionnaires.